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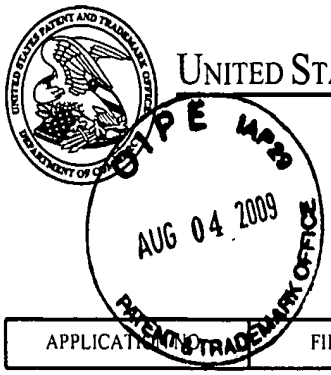

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/006,530	12/05/2001	Naoto Akimoto	03500.016010.	1342

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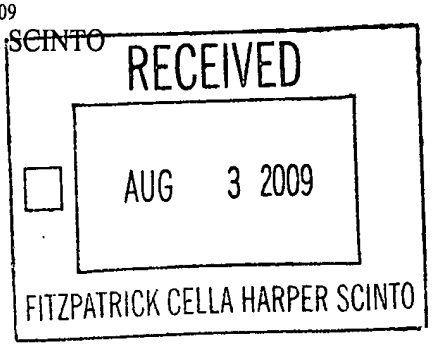

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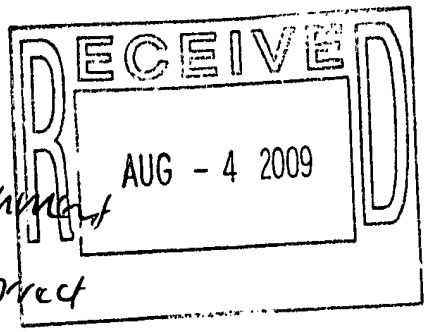

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/809,432
Filing Date: March 26, 2004
Appellant(s): OKANO ET AL.

Ronald P. Kananen and Christopher M. Tobin
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed April 29, 2009 appealing from the Office action mailed December 19, 2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

7099589	Hiramatsu	8-2006
5218466	Brooks	6-1993

6198230	Leeb	3-2001
WO 02/25842	Dowling et al	3-2002

Newton, Harry "Newton's Telecom Dictionary" Eighth Edition, Copyright 1994, pp 452-453

Ramaswami et al, "Optical Networks Practical Perspective" Second Edition, Copyright 2002, pp 165-176

Service, Robert F. "Laser Technology: Hot New Beam May Zap Bandwidth Bottleneck", Science, 21 December 2001 http://www.sciencemag.org/cgi/content/full/294/5551/2454

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 24, 43-52, 57, and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dowling et al. (WO 02/25842 A2, hereinafter "Dowling") in view of Hiramatsu (U.S. Patent No. 7,099,589 B1).

Regarding claim 24, Dowling discloses:

A communications system comprising:

a communications lighting apparatus (Dowling, Fig. 5) having an illumination light source adapted to emit illumination light (Dowling, light source 132) and an information-transmitting unit adapted to emit an optical signal (Dowling, transmitter 136),

wherein said information-transmitting unit is mounted on said illumination light source (Dowling, see the embodiment of Fig. 7. Notice the mounting of module 716

onto base 702 in Fig. 7. Module 716 is an output device that may emit an optical signal (p. 45, l. 17-19). Base 702 may be an illumination light source (p. 44, l. 17-21)).

Dowling does not expressly disclose:

wherein said information-transmitting unit has light sources, a light beam from one of said light sources being emitted independent of a light beam from another of said light sources.

However, these techniques are known in the art, as shown by Hiramatsu (Example 2 on col. 12, l. 45 – col. 14, l. 45, each of the multiple light sources of the multi-beam transmitter emits an independent light beam, all of the beams of the same wavelength, see col. 13, l. 62 - col. 14, l. 11; Example 1 on col. 5+, each of the multiple light sources of the multi-beam transmitter emits an independent light beam, all of the beams of different wavelengths, see col. 11, l. 27-45). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to include these techniques in the apparatus of Dowling. One of ordinary skill in the art would have been motivated to do this to provide the benefit of providing multiple communication channels for increased transmission rates or for communicating with multiple terminals (e.g., Hiramatsu, multi-beam transmitter 102 in Fig. 1 communicates with multiple terminals).

Regarding claim 43, Dowling in view of Hiramatsu discloses:

A communications system according to claim 24, wherein said illumination light source intermittently emits another optical signal in a predetermined pattern (Dowling, various patterns on p. 37, last paragraph).

Regarding claim 44, Dowling in view of Hiramatsu discloses:

A communications system according to claim 24, wherein light beams from said light sources are of the same wavelength (Hiramatsu, Example 2 on col. 12, l. 45 – col. 14, l. 45, each of the multiple light sources of the multi-beam transmitter emits an independent light beam, all of the beams of the same wavelength, see col. 13, l. 62 - col. 14, l. 11).

Regarding claim 45, Dowling in view of Hiramatsu discloses:

A communications system according to claim 24, wherein light beams from said light sources are of different wavelengths (Hiramatsu, Example 1 on col. 5+, each of the multiple light sources of the multi-beam transmitter emits an independent light beam, all of the beams of different wavelengths, see col. 11, l. 27-45).

Regarding claim 46, Dowling in view of Hiramatsu discloses:

A communications system according to claim 24, wherein said information-transmitting unit includes a light source section (Dowling, transmitter 136), said light source section being adapted to emit said optical signal.

Regarding claim 47, Dowling in view of Hiramatsu discloses:

A communications system according to claim 46, wherein said optical signal includes said information (Dowling, transmitter 136 in Fig. 5 is an example of an emitter on p. 13, l. 11-14 that emits optical communication signals, which implies inclusion of information).

Regarding claim 48, Dowling in view of Hiramatsu discloses:

A communications system according to claim 24, wherein said information-transmitting unit includes an interface, said interface being adapted to receive an input

signal from an external device (Dowling, implied by the connections between smart lighting devices 1 in Fig. 2).

Regarding claim 49, Dowling in view of Hiramatsu discloses:

A communications system according to claim 48, wherein said information-transmitting unit includes a recording section (Dowling, e.g., buffer 97 in Fig. 3), said recording section being adapted to record said input signal (Dowling, data input at 65 is recorded on buffer 97, p. 35, l. 8-9).

Regarding claim 50, Dowling in view of Hiramatsu discloses:

A communications system according to claim 48, wherein said interface is a Universal Serial Bus (USB) (Dowling, p. 14, l. 6, "USB").

Regarding claim 51, Dowling in view of Hiramatsu discloses:

A communications system according to claim 48, wherein said interface is a fiber connector (Dowling, p. 14, l. 3, "fiber optics" implies some kind of fiber connector between smart lighting devices 1 in Fig. 2).

Regarding claim 52, Dowling in view of Hiramatsu discloses:

A communications system according to claim 24, wherein said information-transmitting unit has an emission band in the near-infrared band, the intermediate far-infrared band or a longer wavelength band (Dowling, infrared on p. 37, last paragraph).

Regarding claim 57, Dowling in view of Hiramatsu discloses:

A communications system according to claim 24, wherein said light sources emit said optical signal (Hiramatsu, e.g., the light sources of 102 in Fig. 1).

Regarding claim 58, Dowling in view of Hiramatsu discloses:

A communications system according to claim 57, further comprising:

a mobile terminal device adapted to receive said optical signal (Dowling, e.g., mobile communication devices on p. 15, l. 3-20, portable devices on p. 48, l. 19-21).

Claims 29 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dowling in view of Hiramatsu as applied to the claims above, and further in view of Newton (*Newton's Telecom Dictionary, 8th ed.*).

Regarding claim 29, Dowling in view of Hiramatsu discloses:

A communications system comprising:

a communications lighting apparatus (Dowling, Fig. 5) having an illumination light source adapted to emit illumination light (Dowling, light source 132) and an information-transmitting unit adapted to emit an optical signal (Dowling, transmitter 136),

wherein said information-transmitting unit has light sources, a light beam from one of said light sources being emitted independent of a light beam from another of said light sources (Hiramatsu, e.g., the independent sources of 102 in Fig. 1), and

wherein said information-transmitting unit includes a recording medium (Dowling, memory 150 in Fig. 5) and a reading section (Dowling, processor 140),

said reading section being adapted to read information stored in said recording medium (Dowling, notice the interaction between processor 140 and memory 150).

Dowling in view of Hiramatsu does not expressly disclose:

said recording medium being *removable* from said information-transmitting unit.

Notice that Dowling suggests that memory 150 can be any of a number of various types of memory (p. 39, last paragraph). Any suitable removable memory would be another obvious type of memory for Dowling. Various examples of removable memory are well known in the art, as exemplified by Newton ("removable media" (p. 868), "removable cartridge system" (p. 868), "floppy disk" (p. 452), and "floppy mini" (p. 453)). One of ordinary skill in the art would have been motivated to do this since removable memory is easy to replace, reprogram, and transport (e.g., Newton, the example of the "floppy disk" is easy to replace, reprogram, and transport).

Regarding claim 40, claim 40 introduces limitations that correspond to limitations introduced by claim 29. The corresponding limitations of claim 29 are addressed by teachings from Newton. Similarly, Newton is applied here to address the corresponding limitations of claim 40.

Claims 41 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dowling in view of Hiramatsu as applied to the claims above, and further in view of Brooks (U.S. Patent No. 5,218,466).

Regarding claim 41, Dowling in view of Hiramatsu does not expressly disclose:

A communications system according to claim 24, further comprising a third light source unit adapted to emit a visible light beam.

However, such a visible light source unit is known in the art, as shown by Brooks (104 in Figs. 1 and 3). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to include such a visible light source unit in the

apparatus of the prior art of record. One of ordinary skill in the art would have been motivated to do this to indicate the occurrence of an event (Brooks, abstract), which is a useful status indicator.

Regarding claim 42, Dowling in view of Hiramatsu and Brooks discloses:

A communications system according to claim 41, wherein said visible light beam indicates a region in which said optical signal emitted from said information-transmitting unit is receivable (Brooks, 104 in Figs. 1 and 3).

Claims 53 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dowling in view of Hiramatsu as applied to the claims above, and further in view of Ramaswami et al. (*Optical Networks: A Practical Perspective, 2nd ed.*, hereinafter "Ramaswami").

Regarding claim 53, Dowling in view of Hiramatsu does not expressly disclose:

A communications system according to claim 24, wherein said information-transmitting unit has an end-plane emission semiconductor laser used as a light source.

However, this type of laser is well known in the art for providing optical sources for optical communications, e.g., a Fabry-Perot laser as shown in Ramaswami (p. 167-168). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to employ such a laser to provide a light source of Dowling. One of ordinary skill in the art would have been motivated to do this since it is commonly known that lasers generally provide stronger communication signals than the LEDs of Dowling (p. 37, last paragraph).

Regarding claim 54, Dowling in view of Hiramatsu does not expressly disclose:

A communications system according to claim 24, wherein said information-transmitting unit has a vertical-plane emission semiconductor laser used as a light source.

However, this type of laser is well known in the art for providing optical sources for optical communications, e.g., a VCSEL as shown in Ramaswami (p. 172-174). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to employ such a laser to provide a light source of Dowling. One of ordinary skill in the art would have been motivated to do this since it is commonly known that lasers generally provide stronger communication signals than the LEDs of Dowling (p. 37, last paragraph).

Claim 55 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dowling in view of Hiramatsu as applied to the claims above, and further in view of Service ("Hot New Beam May Zap Bandwidth Bottleneck").

Regarding claim 55, Dowling in view of Hiramatsu does not expressly disclose:

A communications system according to claim 24, wherein said information-transmitting unit has a quantum-cascade semiconductor laser used as a light source.

However, this type of laser is well known in the art for providing optical sources for optical communications, e.g., a QCL as shown in Service (entire article). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to employ such a laser to provide a light source of Dowling. One of ordinary skill in the art

would have been motivated to do this since it is commonly known that lasers generally provide stronger communication signals than the LEDs of Dowling (p. 37, last paragraph).

Claim 56 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dowling in view of Hiramatsu as applied to the claims above, and further in view of Ramaswami and Service.

Regarding claim 56, Dowling in view of Hiramatsu does not expressly disclose:

A communications system according to claim 24, wherein said information-transmitting unit is a combination of an end-plane emission semiconductor laser, a vertical-plane emission semiconductor laser, and a quantum-cascade semiconductor layer.

However, these various types of lasers are all well known in the art for providing optical sources for optical communications, e.g., a Fabry-Perot laser and a VCSEL in Ramaswami (p. 167-168, 172-174) and a QCL in Service (entire article). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to employ any or all of them in any combination in the information-transmitting unit of Dowling. One of ordinary skill in the art would have been motivated to do this since it is commonly known that lasers generally provide stronger communication signals than the LEDs of Dowling (p. 37, last paragraph).

Claim 59 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dowling in view of Hiramatsu as applied to the claims above, and further in view of Leeb et al. (U.S. Patent No. 6,198,230 B1, hereinafter "Leeb").

Regarding claim 59, Dowling in view of Hiramatsu does not expressly disclose:

A communications system according to claim 58, wherein said mobile terminal device is adapted to display contents of said optical signal.

However, the mobile terminal devices of Dowling include devices that conventionally comprise displays, such as cellular telephones (Dowling, p. 15, middle paragraph) and portable computers (Dowling, p. 15, last two lines). Additionally, the technique of displaying the contents of a received signal is extremely common in the art; see an example in Leeb (Fig. 10). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to arrange such displays to display the contents of the optical signal received. One of ordinary skill in the art would have been motivated to do this for any number of common reasons for displaying the contents of a received signal, such as to verify the proper reception of the received signal or to alert a user about an improper reception of the received signal.

(10) Response to Argument

In regard to claims 24, 43-52, 57 and 58; the appellant argues that Dowling fails to teach an illumination light source adapted to emit illumination light and an information transmitting unit adapted to emit an optical signal (argument middle of page 11 of Brief) . This is not understood. Dowling clearly teaches a light apparatus (figure 5, element

130 or figure 7, element 702) adapted to emit illumination light (figure 5, 132 or figure 7, element 702 and/or element 720) and an information transmitting unit adapted to emit an optical signal (figure 5, 136 or figure 7, element 716). See also page 37, lines 12-23 which teach that it is obvious to used different sources for transmitting light and data. With regard to the appellants' wherein clause that the information transmitting unit is mounted on the illumination light source, see page 44, lines 17-21 of Dowling as pointed out in the final rejection. He teaches that element 702 may act as the illumination device on which element 716 is mounted. It should be noted that module 712 of figure 7 also includes a physical interface to an infrared network. As taught by Dowling and is well known, infrared interfaces often use LEDs.

The appellant then argues that in the "wherein" clause of claim 24, the information transmitting unit has light sources and specifies that Dowling fails to teach this feature (page 12 of Brief). Dowling clearly teaches that plural LEDs may be used in figure 7 (page 45, lines 17-19). In that he says that element 716 is made up of plural LEDs or other output device, it is clear that this can be made up of an output device which is provided by LEDs. See also page 37, lines 12-23 which teach that it is obvious to used different sources for transmitting light and data. He therefore teaches that it would have been obvious to use element 720 for illumination and element 716 as an output device using LEDS (page 37, lines 13-14 or 20-23). Further, it appears that the elements of figure 5 are equivalent to the related elements in figure 7. For example, Figure 7 is similar to figure 5 in that they both teach light source adapted to emit illumination light (figure 5, 132 or figure 7, element 720) and an information transmitting

unit adapted to emit an optical signal (figure 5, 136 or figure 7, element 716 and page 45, lines 17-19). Although it appears from Dowling, that figure 5 and 7 have equivalent elements, in the rejection, it would appear that figure 5 did not need to be mentioned and that figure 7 alone reads on the two elements with the functional language of plural light sources. Therefore, figures 5 and 7 did not have to be combined in order to provide these elements (although this is addressed by page 37, lines 12-23 of Dowling).

The appellant argues that Dowling fails to teach that a light beam from one of the light sources is emitted independent of a light beam from another of the light sources (pages 13-15 of the Brief). The previous rejection addresses this by using a secondary reference (Hiramatsu). The appellant argues that Hiramatsu does not teach that the transmitter 102 of Hiramatsu has more than one light source (Brief, page 17, middle of the page). See the last sentence of the abstract of Hiramatsu and column 6, lines 19-24 in which he teaches, "The multi-beam transmitter 102 requires a driver dedicated to the light source of each beam so that individual signals can be simultaneously transmitted to all of the space cells.". This makes it clear that element 102 has separate sources for each beam and that they are separately controlled. He teaches that each source for each beam has a dedicated driver. This would obviously cause each source to be independently driven (independently emit). The appellant argues (Brief, page 17, bottom of the page) that the examiner in the Advisory action has switched from elements 114-116 of Hiramatsu and now relies on element 102. In the rejection of claim 24, the only element of Hiramatsu mentioned in the rejection is element 102. The art rejection used the teachings of Hiramatsu to modify the

teachings of Dowling," It would have been obvious to modify the optical data source of Dowling with the optical data source of Hiramatsu in order to provide the benefit of multiple communication channels for increased transmission rates or for communicating with multiple terminals (e. g. Hiramatsu, multibeam transmitter 102 in figure 1 communicates with multiple terminals)" (quoted from previous rejection).

The appellants' arguments with regard to claims 29 and 40 appear to be the same as for claim 24 (Brief, top half of page 19) which have already been addressed.

The appellants' arguments with regard to claims 41-42 are drawn to the fourth (third in claims under final, amended as "fourth" after final) light source (Brief, pages 19-20). The present examiner feels that claim 41 is broad (although not indefinite). For example, the claim only says that there is a fourth light source unit adapted to emit a visible light beam. There is no cooperative relationship between the "fourth light source unit" and any other means in the claim. While the claims are not indefinite, they can be read as broadly as they are claimed. The examiner in the final rejection used a secondary reference to teach that a visible light source could be used with an infrared source. While he did not err because the claim language is so broad, it appears to the present examiner that the additional reference is not necessary. Dowling and Hiramatsu teach that more than one light source may be used and they also teach that some sources may be visible (note that nowhere in claim 41 and/or 24 from which it depends does the appellant claim that the visible source is combined with infrared or that it is separate from the light sources in the information transmitting unit or that it is used to transmit data). It would appear to the present examiner that the combination of

Dowling and Hiramatsu would provide the teaching of claim 41. Dowling teaches visible light sources (see page 45, lines 17-19 or Dowling, "additional lights" in element 716 which are different from the illumination means 720. In that module 712 can include an infrared interface (act as information transmitting unit which inherently has a source) mounted on 702 (which can act as a light source, page 44, lines 17-21) and 716 may have additional lights (act as a visible light source). With regard to claim 42, the appellant provides no arguments, the examiner feels that the combination of Brooks is warranted with regard to claim 42. Since Dowling and Hiramatsu provide the limitations of claim 41, Brooks teaches a visible light indicates a region in which the optical signals emitted from the information transmitting unit is receivable (which was not argued by the appellant).

The appellants' arguments with regard to claims 53-54 appear to be the same as for claim 24 (Brief, page 21) which has already been addressed.

The appellants' arguments with regard to claim 55 appear to be the same as for claim 24 (Brief, page 22) which has already been addressed.

The appellants' arguments with regard to claim 56 appear to be the same as for claim 24 (Brief, page 23) which has already been addressed.

The appellants' arguments with regard to claim 59 argue the references individually (Brief, page 24). The appellants' argue that Dowling and Hiramatsu do not teach the limitations of claim 59. They argue that Leeb does not teach the limitations of claim 24. the argument is not persuasive since the references have been used in a 35

USC 103 obviousness rejection. There is no argument as to why the combination used in the rejection does not read on the claimed subject matter.

For the above reasons, it is believed that the rejections should be sustained.

The IDS of 4-22-09 has been considered and accompanies this action.

Respectfully submitted,

/Leslie Pascal/
Primary Examiner
Art Unit 2613

Conferees:

/Kenneth N Vanderpuye/
Supervisory Patent Examiner, Art Unit 2613

/Mohammad Sedighian/
Primary Examiner
Art Unit 2613

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(Use as many sheets as necessary)

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Complete If Known	
Application Number	10/809,432-Conf. #8124
Filing Date	March 26, 2004
First Named Inventor	Nobukata Okano
Art Unit	2613
Examiner Name	D. S. Kim
Attorney Docket Number	SON-2981

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

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	BA	JP-64-053640	03-01-1989	Koito Ind Ltd, et al		

Examiner Signature		Date Considered	

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	CA	Japanese Office Action issued March 10, 2009 for corresponding Japanese Application No. 2003-103425	

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